

What is claimed is:

1. A method for determining whether a substance is an activator or an inhibitor of a function of a protein comprising: (a) contacting the protein
5 with a substance to be tested, wherein the protein is selected from the group consisting of: MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase; and (b) measuring whether the function is inhibited or activated.
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2. A method for determining whether a substance is an activator or an inhibitor of a function of a protein comprising: (a) contacting the protein
15 with a substance to be tested, wherein the protein is a functionally equivalent variant, mutant or fragment of a protein selected from the group consisting of: MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase; and (b) measuring whether the function is inhibited or activated.
- 20 3. The method according to claim 1 wherein the inhibition or activation of the function is measured directly.
4. The method according to claim 1 wherein the inhibition or activation of the function is measured indirectly.
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5. The method according to claim 1 wherein the protein is a mammalian protein.
6. The method according to claim 5 wherein the protein is a human
30 protein.

7. The method according to claim 1 wherein the method is performed using a cellular system.
8. The method according to claim 1 wherein the method is performed using a cell-free system.
9. A method for determining an expression level of a protein comprising:
(a) determining the level of the protein in a hyperactivated macrophage, wherein the protein is selected from the group consisting of: MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase; (b) determining the level of the protein in a non-hyperactivated macrophage, wherein the protein is selected from the group consisting of: MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase; and (c) comparing the level of the protein expressed in step (a) to the level of the protein expressed in step (b), wherein a difference in levels indicates a differentially expressed protein.
10. The method according to claim 9 wherein the hyperactivated macrophage is a mammalian macrophage and the non-hyperactivated macrophage is a mammalian macrophage.
11. The method according to claim 10 wherein the hyperactivated macrophage is a human macrophage and the non-hyperactivated macrophage is a human macrophage.
12. A method for diagnosing or monitoring a chronic inflammatory airway disease comprising: (a) determining the level of the protein in a hyperactivated macrophage, wherein the protein is selected from the group consisting of: MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide

Glycosyltransferase; (b) determining the level of the protein in a non-hyperactivated macrophage, wherein the protein is selected from the group consisting of: MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide

5 Glycosyltransferase; and (c) comparing the level of the protein expressed in step (a) to the level of the protein expressed in step (b), wherein a difference in levels indicates a differentially expressed protein.

10 13. The method according to claim 12 wherein the chronic inflammatory airway disease is selected from the group consisting of: chronic bronchitis and COPD

14. A substance determined to be an activator or inhibitor of a protein
15 selected from the group consisting of: MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase.

15. A substance determined to be an activator or an inhibitor of a protein
20 selected from the group consisting of: MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase according to the method of claim 1.

16. A substance for the treatment of a disease wherein the substance is an
25 activator or an inhibitor of a protein selected from the group consisting of: MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase

17. The substance according to claim 16 wherein the disease is a chronic
30 inflammatory airway disease.

18. The substance according to claim 17 wherein the chronic inflammatory airway disease is selected from the group consisting of: chronic bronchitis and COPD.
- 5 19. A pharmaceutical composition comprising at least one substance determined to be an activator or an inhibitor of a protein selected from the group consisting of MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase.
- 10 20. A pharmaceutical composition comprising at least one substance determined to be an activator or an inhibitor of a protein selected from the group consisting of MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase according to the method of claim 1.
- 15 21. A method for treating a chronic inflammatory airway disease comprising: administering to a subject in need of such treatment an effective amount of a pharmaceutical composition comprising at least one substance determined to be an activator or an inhibitor of a protein selected from the group consisting of: MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase.
- 20 22. A method for treating a chronic inflammatory airway disease comprising: administering to a subject in need of such treatment an effective amount of a pharmaceutical composition comprising at least one substance determined to be an activator or an inhibitor of a protein selected from the group consisting of: MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase according to the method of claim 1.
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23. The method according to claim 21 wherein the subject is a mammal.
24. The method according to claim 21 wherein the subject is a human.
- 5 25. The method according to claim 21 wherein the chronic inflammatory airway disease is selected from the group consisting of: chronic bronchitis and COPD.
- 10 26. A method for selectively modulating a protein selected from the group consisting of MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase in a macrophage, comprising administering a substance determined to be an activator or an inhibitor of a protein selected from the group consisting of MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase.
- 15 27. The method according to claim 26 wherein the macrophage is involved in a chronic inflammatory airway disease.
- 20 28. The method according to claim 27 wherein the chronic inflammatory airway disease is selected from the group consisting of: chronic bronchitis and COPD.
- 25 29. A method for selectively modulating a protein selected from the group consisting of MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase in a macrophage, comprising administering a substance determined to be an activator or an inhibitor of a protein selected from the group consisting of MIF, DAD1, ARL4, GNS, Transglutaminase 2, Stearyl-CoA-Desaturase and UDP-Glucose Ceramide Glycosyltransferase
- 30 according to the method of claim 1.